

1 What is claimed is:

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3 1. A method of <sup>in M/Sope</sup> installing a gasket in a socket end of a  
4 thermoplastic pipe which is used to form a pipe coupling,  
5 the method comprising the steps of:

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7 providing a mandrel with an inner extent and an outer  
8 extent and having a generally cylindrical outer working  
9 surface;

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11 installing a gasket at a first circumferential position  
12 on the outer working surface;

13

14 extruding a strip of thermoplastic material and spirally  
15 wrapping the extruded strip about the working surface of  
16 the mandrel and over the gasket, whereby the  
17 thermoplastic material is conformed to the shape of the  
18 gasket to form a retention groove for retaining the  
19 gasket and again contacts the working surface of the  
20 mandrel to form a bell connection;

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22 retracting the bell connection and the retained gasket  
23 from the working surface of the mandrel.

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25 2. The method of claim 1, further comprising the steps  
26 of:

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28 electrowelding the thus formed bell connection onto a  
29 generally cylindrical length of thermoplastic pipe.

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31 3. The method of claim 1, wherein the thermoplastic  
32 material is polyethylene.

*Sub 1*  
*B*

4. A method of manufacturing an integrated bell connection for a joint of thermoplastic pipe, the method comprising the steps of:

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providing a rotatably driven mandrel having a substantially cylindrical end section corresponding to the internal diameter of a bell connection to be formed, the mandrel having an outer extent and an inner extent, the mandrel having a locating area for an elastomeric gasket on an external surface thereof;

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positioning an elastomeric gasket on the external surface of the mandrel at the locating area thereof, the locating area being between the inner and outer extents of the mandrel;

16

forming a bell connection about the mandrel and suitably located gasket by extruding a melt profile made of thermoplastic material onto the mandrel beginning adjacent the inner extent of the mandrel and spirally winding the melt profile around the cylindrical end section of the mandrel and around the gasket such that adjacent windings of the melt profile make contact;

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cooling the bell connection thus formed;

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removing the bell connection and gasket from the mandrel.

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29 5. A method of manufacturing an integral gasket and bell  
30 connection for a joint of thermoplastic pipe, the method  
31 comprising the steps of:

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1 providing a rotatably driven mandrel having a  
2 substantially cylindrical end section corresponding to  
3 the internal diameter of a bell connection to be formed,  
4 the mandrel having an outer extent and an inner extent,  
5 the mandrel having a locating area for an elastomeric  
6 gasket on an external surface thereof;

7

8 positioning an elastomeric gasket on the external surface  
9 of the mandrel at the locating area thereof, the locating  
10 area being between the inner and outer extents of the  
11 mandrel;

12

13 forming a bell connection about the mandrel and suitably  
14 located gasket by extruding a melt profile made of  
15 thermoplastic material onto the mandrel beginning  
16 adjacent the inner extent of the mandrel and spirally  
17 winding the melt profile around the cylindrical end  
18 section of the mandrel and around the gasket such that  
19 adjacent windings of the melt profile make contact;

20

21 terminating the extruding step while continuing to rotate  
22 the mandrel;

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24 spraying cooling water over the bell end connection thus  
25 formed;

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27 cutting a free end of the connection with a rotating  
28 knife; and

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30 removing the bell end connection and integral gasket from  
31 the mandrel.

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1    6. The method of claim 5, wherein the thermoplastic  
2    material being extruded is ~~polyethylene~~.

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4    7. The method of claim 5, wherein the mandrel is heated  
5    to at least about 100 degrees C. before the melt profile  
6    is extruded.

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8    8. The method of claim 5, further comprising the step of  
9    subjecting the extruded melt profile to a weak mechanical  
10   loading by means of a rotating roll for intensifying a  
11   welding-together of the contacting melt profile windings.

12

~~13~~ 9. The method of claim 5, wherein the rotating knife  
~~14~~ comprises a freely rotating circular blade which is  
15   pressed against the thermoplastic material of the bell  
16   end connection for cutting the free end of the  
17   connection.

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19   10. The method of claim 5, further comprising the steps  
20   of:

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22   removing the bell connection from the mandrel by blowing  
23   pressurized air between the mandrel and the connection  
24   while directly pushing the connection in a direction  
25   opposite the mandrel.      fig>

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27   11. The method of claim 10, further comprising the step  
28   of:

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30   electrowelding the thus formed bell connection onto a  
31   generally cylindrical length of thermoplastic pipe.

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